GROUP ON EARTH OBSERVATIONS

Architecture Implementation Pilot Phase 2
AIP-2 Renewable Energy Scenario

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Agenda

- AIP-2 recap

- Renewable Energy SBA response & Scenario
  - Federate the RE Community towards GEOSS Interoperability Concepts (provide standard access to energy related catalogues and resources)
    - Identify, check and validate candidate resources for RE SBA
    - Metadata and Catalogue for RE resources
  - «Sitting Solar Power Plant» use case

- Future milestones

Architecture Implementation Pilot - AIP-2 recap

- **Overview**
  - *« Leverage the incorporation of contributed components consistent with the GEOSS Architecture using a GEO Web Portal and a Clearinghouse search facility to access services through GEOSS Interoperability Arrangements in support of the GEOSS Societal Benefit Areas »*

- **Goals**
  - Better awareness of community interoperability efforts
  - Better understanding and use of proposed GEOSS standards
  - Standardization of system's data exchange
  - Leveraging and reuse of existing resources
  - Improved resource availability and decision-making for end users

Architecture Implementation Pilot - AIP-2 recap

- **Call for Participation (remains open)**
  - 38 responses
  - Kickoff (85 participants) 25&26 Sep. 2008 at the NCAR Mesa Laboratory, Boulder, Colorado, USA
    - Presentation and Analysis of responses
    - Breakdown into two categories

Community WGs Scenarios	Transverse Technology WG Use Cases
•Disaster Response •Climate Change and Biodiversity •Renewable energy •Air Quality and Health	•Clearinghouse, Catalogue, Registry, Metadata (CCRM) •Access Services (Products, Sensors, Models) •Workflow and Alerts •Portal and Application Client •Test Facility

Renewable Energy SBA response & Scenario

- **Renewable Energy SBA response** Mines ParisTech and Team
  - Team incudes:
    Mines ParisTech, DLR, JRC, METEOTEST, NASA (Langley Research Center), Rutherford Appleton Laboratory

  - Take into account the Energy Community attempts
    - Expressed in Wind and Solar Energy (RE Community of Practice)
    - Users requirements reports www.geoss-ecp.org
    - GEOSS Full picture

- **Renewable Energy Scenario**
  - Two main targets

    1. Federate the RE Community towards GEOSS Interoperability Concepts (provide as much as possible standard access to energy related catalogues and resources)
    2. Demonstrate interoperability concepts through a real application use case for “Sitting Solar Power Plants”

Renewable Energy Scenario #1

- Federate the RE Community towards GEOSS Interoperability Concepts
  - Identify, check and validate, candidate resources for the RE SBA & Scenario
  - Full list:https://sites.google.com/site/geosspilot2/Home/renewable-energy-working-group/re-wg-resources-list

Ajouter un élément Personnaliser cette liste

Organization	Resource Description	Interoperability Arrangement	Spatial Coverage	Time Coverage	Link	Updated
Trier	Trier	Trier	Trier	Trier	Trier	Trier
CIESIN	Hazards, Population Density, Natural Disaster, Human Footprint... layers	OGC WMS and WFS Compliant Mapping Services	World	N/A	List of resources	2009-10-16
NOAA NCDC	The US Drought Portal NIDIS: Water Resources of the United States: water information, including current streamflow and current drought maps		USA	N/A	Hydrological Monitoring	2009-10-16
Mines ParisTech / NOAA	The NCEP Forecast Web service provides access to forecasts of several meteorological parameters at surface: wind, air pressure, temperature, relative humidity, precipitation, and irradiances, for 3 days every 3-hours	WCS WSDL	World	Forecast for 3 days ahead every 3-hours	NCEP Forecast	2009-10-16
Mines ParisTech	HelioClim 3: Database of Solar Radiation	WCS WSDL	Europe - Africa	Time series - Minute to Month	HelioClim 3	2009-10-16
DLR (Deutsches Zentrum für Luft- und Raumfahrt - German Aerospace Center)	Solar Energy Mining (SOLEMI) is a service providing irradiance data :)	WCS WSDL	Europe, Africa, Western Asia, parts of Australia and South America (Presently limited to Europe)	Time Series (presently limited to the year 2005)	SOLEMI	2009-10-16
Mines ParisTech	Monthly means of solar irradiance (downwelling shortwave irradiance), minima, maxima and mean values of air temperature at 2 m, minima, maxima and mean values of relative humidity at 2 m	WCS WSDL	World	N/A	ERP Climate	2009-10-16
DLR (Deutsches Zentrum für Luft- und Raumfahrt - German Aerospace Center)	Solar Energy Mining (SOLEMI) is a service providing irradiance data :)	JSR-168 Compatible Portlet	Europe, Africa, Western Asia, parts of Australia and South America (Presently limited to Europe)	Time Series (presently limited to the year 2005)	MESoR/SOLEMI Portlet	2009-10-16
Mines ParisTech	Monthly means of solar irradiance (downwelling shortwave irradiance), minima, maxima and mean values of air temperature at 2 m, minima, maxima and mean values of relative humidity at 2 m.	JSR 168 Compliant Portlet	World	N/A	MESoR ERP Climate	2009-10-16
Mines ParisTech	GEOSS Energy Community of Practice Portal	Community Portal	N/A	N/A	GEOSS Energy CoP	2009-10-16
Mines ParisTech	Community portal directory containing INSPIRE ISC 19119 compliant Metadata of existing W3C WSDL Web Services in Energy	ISO 19115 Metadata	N/A	N/A	http://www.webservice-energy.org/metadata/	
JAXA	Catalogue server supports CSW2.0, which enables an ISO19115(19139) compliant view of the various collections (dataset series) of ALOS (Advanced Land Observing Satellite) satellite data. WMS 1.0.0 mapping service for ALOS images which can be used for geographical base, base map, etc	OGC WMS compliant ALOS image, ISO19115(19139), OGC CSW 2.0	World	N/A		2009-11-19

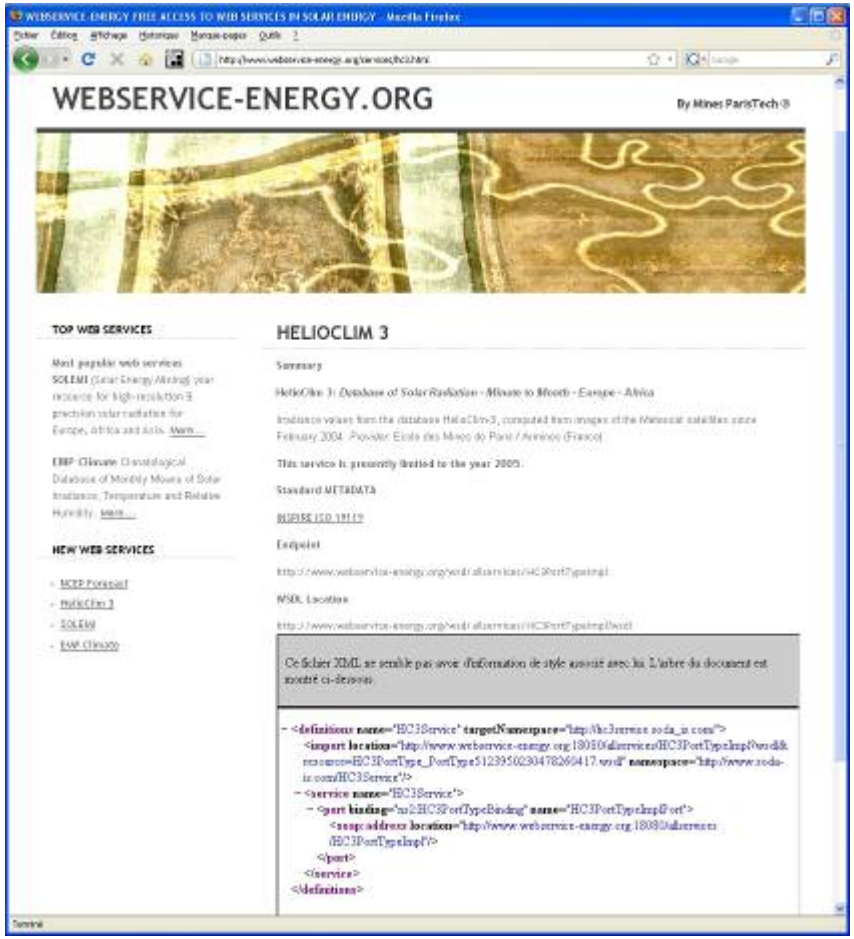
Renewable Energy Scenario #1

Metadata and Calalogue for Resources

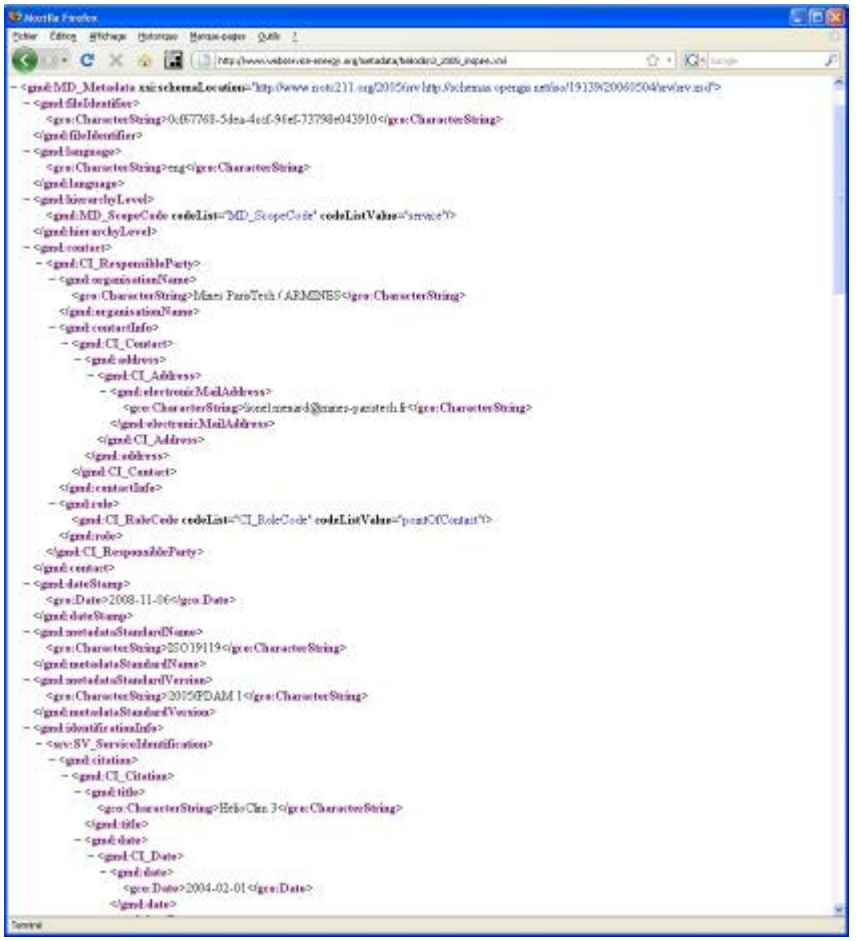
- **Provide Metadata and catalogue ?**
  - Address GEOSS Interoperability best practices
  - Describe our resources
  - Resources to be searched, find and discovered by the GEOSS Community.
- **Step by step process**
  - Deployed W3C Web Services on a Community Portal (www.webservice-energy.org)
  - Generating ISO 19119 Metadata (INSPIRE Metadata Generator)
  - Build a WAF (Web Accessible Folder) in the Communinty Portal to host Metadata for simple catalogue approach
  - Registration the WAF in the GEOSS Registry
  - WAF harvested by GEOSS Crawler
  - Successfully search and discover our services in GEOSS Portal candidate

Renewable Energy Scenario #1

Renewable Energy Community Portal



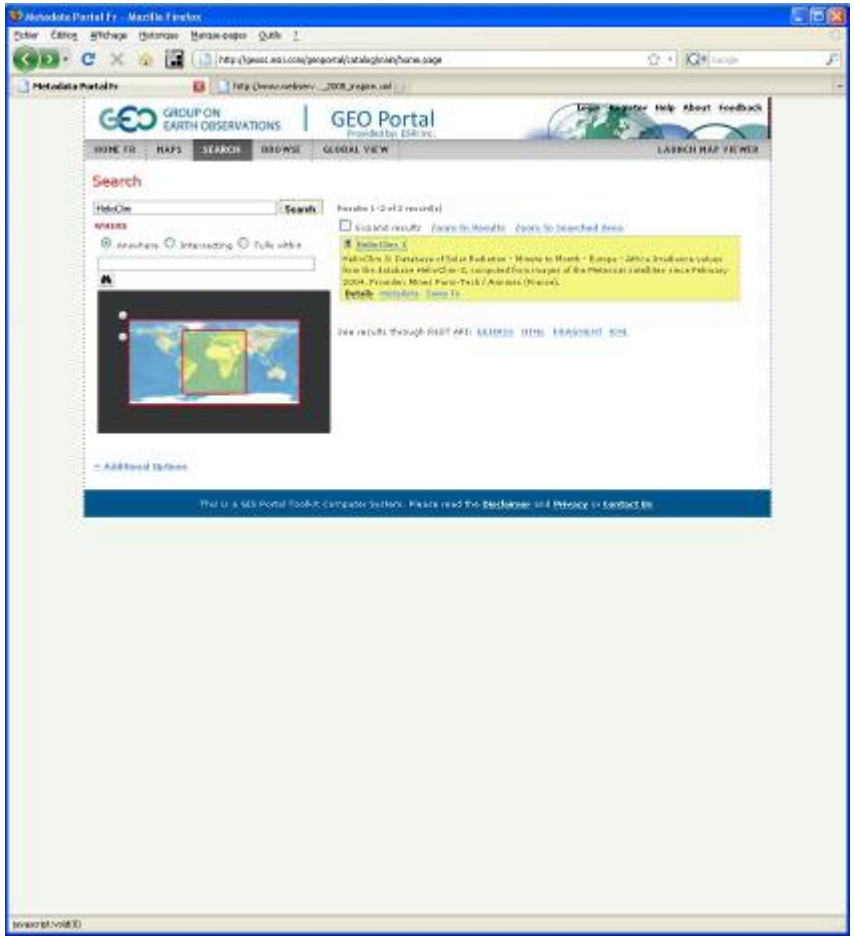
HelioClim 3
W3C WSDL Web Service Description & endpoint



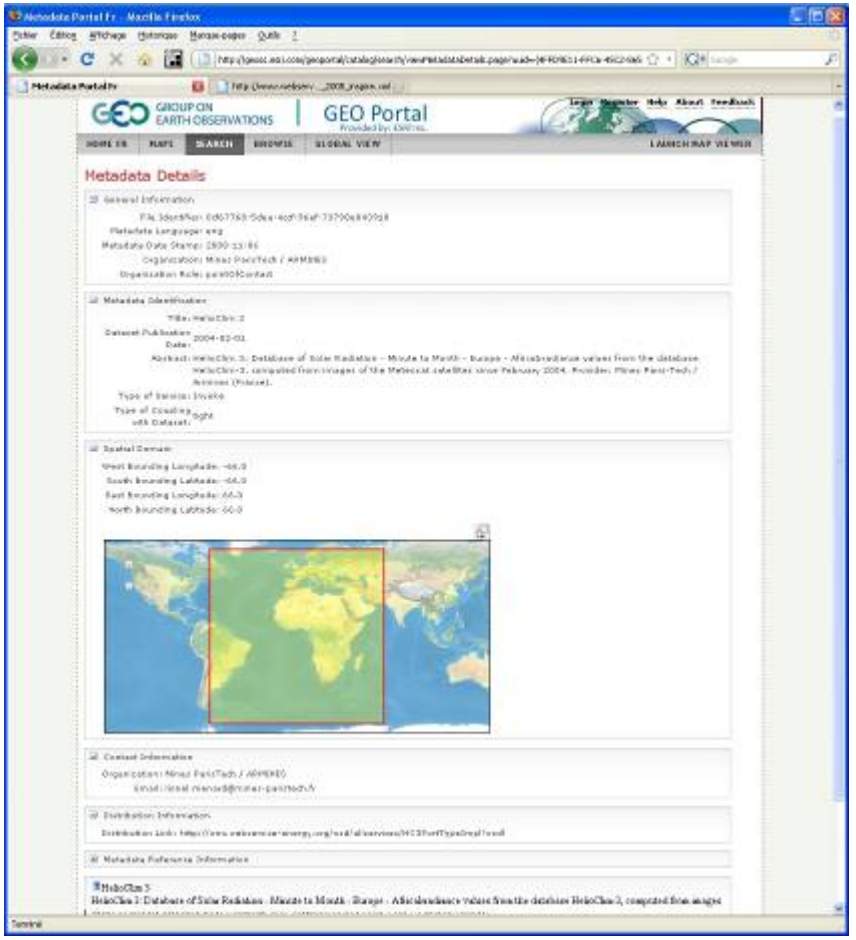
Helioclim 3 ISO 19119 INSPIRE Metadata

Renewable Energy Scenario #1

ESRI Candidate Portal Results



Query for « HelioClim »



Helioclim 3 Metadata details

Scenario use case for “Sitting Solar Power Plants” #2

•Demonstrate interoperability concepts through a real application use case for “Sitting Solar Power Plants”

• Scenario summary (Real Business case):

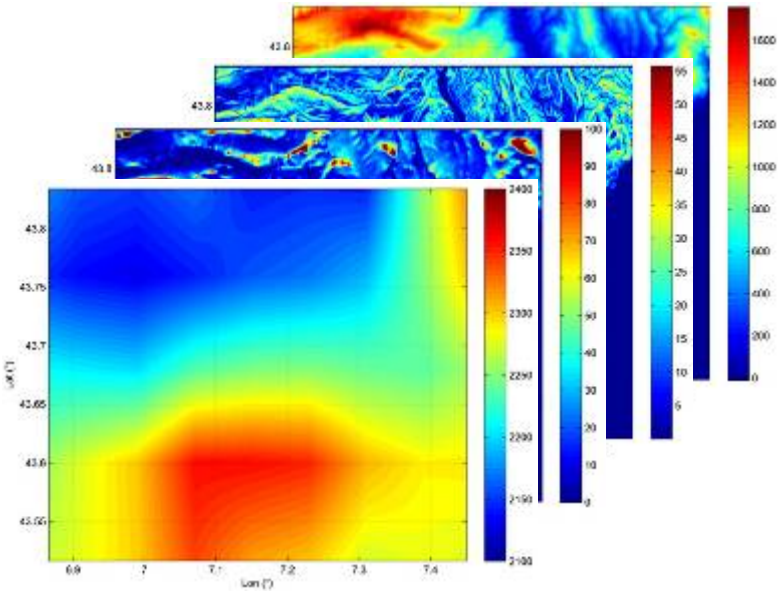
• Investors and electricity producers willing to invest in solar plants need precise and thorough information to support decision-making.

• On their behalf, consulting companies perform feasibility studies in order to decide where to sit power plants and which technology to use ensuring a profitable return on investment.

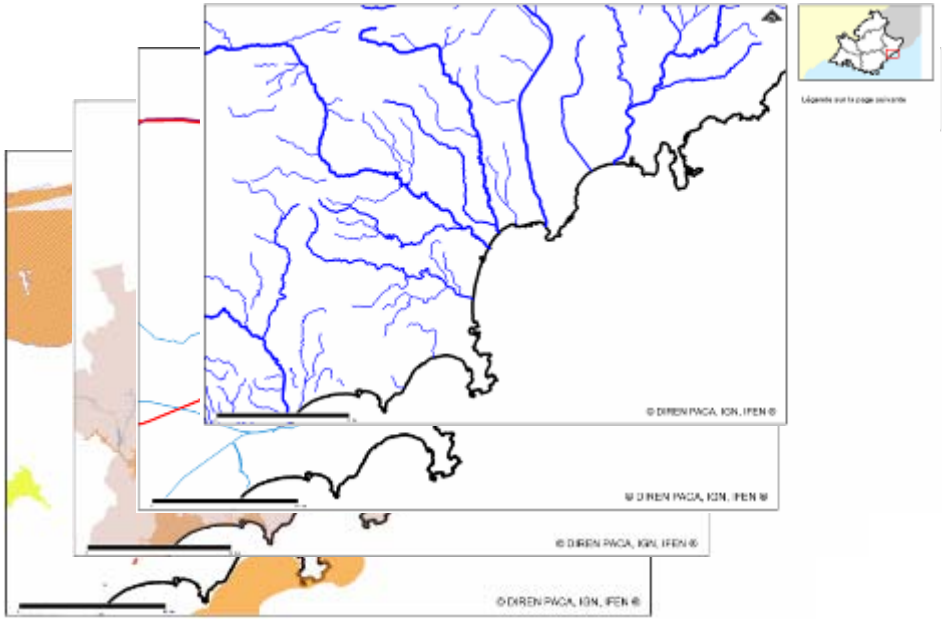
• To reach that goal, consultants need an **easy and unified access to data sets**. Such data sets include **meteorological, geographical** and **environmental** parameters.

Scenario use case for “Sitting Solar Power Plants” #2

- **Global overview**
  - **Inputs:**
    - bounding box (lat., lon.), dates, scale
  - **Output results:**
    - the layers should be provided as a downloadable archive



Core Layers



« Optional » layers

Scenario use case for “Sitting Solar Power Plants” #2

Resources description

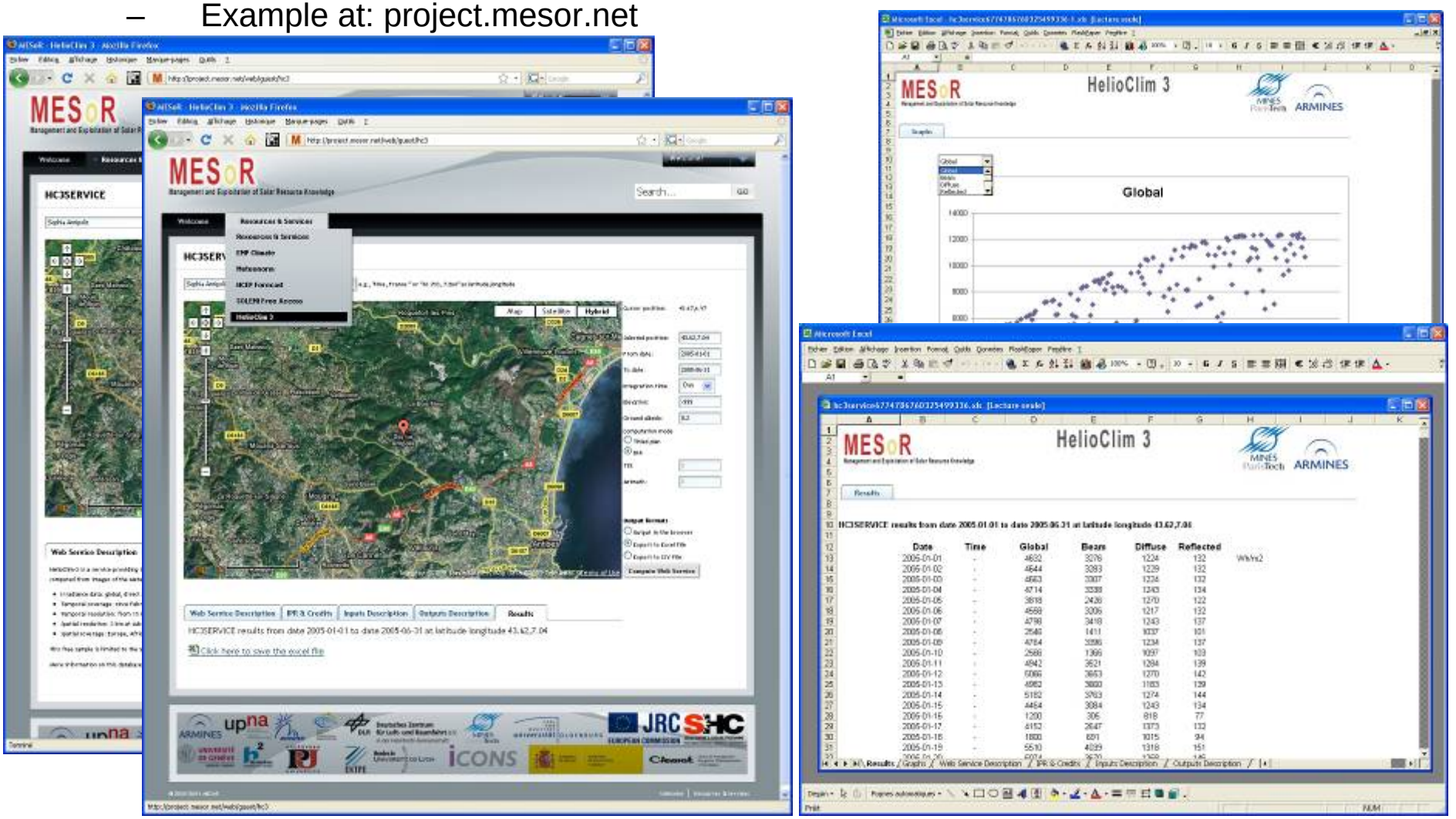
The scenario address two kinds of resources

- **Core layers** (mandatory)
- Build and added to the archive by processing at Mines ParisTech
    - Meteorological data (Map of annual irradiation kWh/m2 from HelioClim)
    - Terrain Data from SRTM (Shadows %, Altitude m., Local Max Slope in degree)
- **“Additional” layers** (Optional but valuable)
- Triggered and added to the archive from already known and identified interoperable resources of GEOSS partners
    - Geographical data (Hydrology, Electricity Network,…)
    - Environmental data (Protected Area, Risk and hazard)

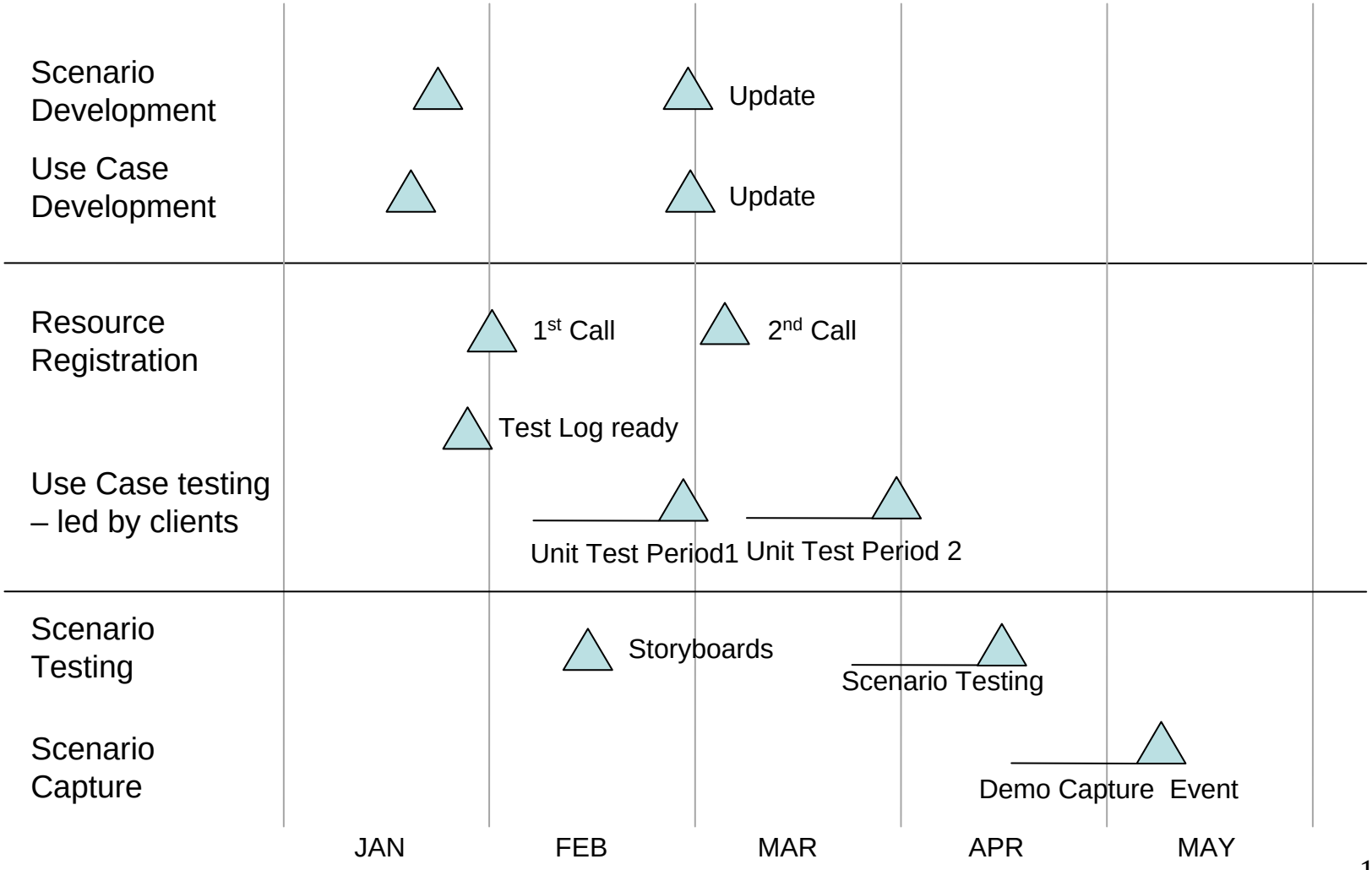
- Already identify operational and persistent resources
    - Mines ParisTech (Solar Radiation W3C Web Services)
    - CEISIN Columbia Univ. (Hazard, Risks, Population Density – OGC WMS)
- Need to chain the various resources

Scenario use case for “Sitting Solar Power Plants” #2

- **Client Development (Part of EU Funded project MESoR)**
  - The client application will be “packed” in a JSR-168 Portlet
  - Example at: project.mesor.net



Milestones: Phasing of Test, Integration and Demo



Collaborative Workspace for AIP-2

https://sites.google.com/site/geosspilot2/Home